

UDOT STRUCTURES DIVISION COMMENT AND RESOLUTION SHEET				CODES: A. ACCEPT COMMENT—WILL BE CORRECTED, ADDED, OR CLARIFIED. B. DESIGNER WILL EVALUATE. C. DELETE COMMENT D. DEPARTMENT TO EVALUATE.	
DOCUMENT CONTROL NUMBER:		REVIEW TYPE: DRAFT		REVIEWER(S): PARTICIPANTS	DATE: 9-3-08
DESCRIPTION: ABC PHASE 2 WORKSHOP COMMENTS		DESIGNER: CME		DISCIPLINE: DESIGN	CRM:
ITEM No.	PAGE No. ⁽¹⁾	COMMENTS	CODE ⁽²⁾	RESPONSE ⁽²⁾	FINAL DISPOSITION ⁽³⁾
1		Grouted Bar Couplers: What corrosion protection is proposed-epoxy coating with sleeves? Can the bars be epoxy coated within the sleeves?	B	The sleeves can be epoxy coated. The standards and specifications will cover corrosion protection including whether or not the bars can be coated within the couplers.	The bars can be coated within the couplers. This will be handled in the specifications that are to be developed.
2		Grouted Bar Couplers: What are the AASHTO Specifications for Couplers?	B	AASHTO requires that mechanical splices develop 125% of the specified yield strength. This may not be sufficient for high seismic connections. A specification that is more stringent than AASHTO will be evaluated and may be specified.	No changes are proposed. UDOT is investigating possibilities for high seismic testing of coupler connections
3		General precast components: There is a need for tighter tolerance control. What will be the tolerances for precast elements?	B	Designers need to specify tolerances on plans and account for tolerances in the design. Tolerance details will be developed and included in the final standards. The PCI tolerance manual will be a starting point.	Tolerance sheets have been developed for all critical components
4		Drilled anchors: Look into issues regarding the use of epoxy adhesive anchors in hydrating concrete.	B	This will be investigated and resolved if there is an issue.	No changes proposed

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5		Curing of precast components: The use of curing compounds does not eliminate the need for a 7 days curing time. Design/Build projects should still require a 7 day minimum cure time.	B	The issue with cure times on prefabricated elements will be studied by the project team.	UDOT is investigating this issue in detail.
6		Lightweight concrete: The department should investigate the use of lightweight concrete to reduce the shipping weight of components. Designers should get industry involved during design in order to determine the available concrete strengths with local lightweight concrete.	B	The team will investigate the availability and strength of local lightweight concretes and incorporate recommendations in the final standards.	Lightweight concrete is being considered for all elements, especially for substructure elements
7		Seismic Detailing: The use of wrapping columns with either glass of carbon fiber for seismic performance was questioned and discussed. External connections- not used often	C	The use of fiber wrapping of columns is not normally used for new construction, but used for retrofitting existing bridge columns that do not have adequate confinement reinforcement. For this reason, fiber wrapped columns will not be part of the ABC standards. Designs will be made with conventional internal confinement reinforcement.	No changes proposed
8		Shipping and handling of precast components: Designers should make sure that it is reasonable to pick and lift larger precast pieces, but not design the actual lifting hardware.	A	The intent is to have designers check the member for stresses during lifting, but leave the actual lifting calculations up to the contractor (means and methods of construction).	No changes proposed

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9		Shipping and handling of precast components: Require that the precast fabricator choose and design the actual pick points and lifting hardware.	A	Agreed. This will be incorporated into future ABC specifications.	This will be handled in the specifications that are to be developed.
10		Shipping and handling of precast components: Investigate developing a combined lifting device that can double as a leveling device.	B	This will be investigated; however it may fall under the category of contractor means and methods of construction. The final standards may recommend showing preliminary lifting locations and leveling systems, but require that the contractor determine the final locations and leveling system.	No changes proposed
11		Approach slab details: Investigate improving the joint between the approach slab and the sleeper slab.	B	This joint has been a problem in the past with prefabricated approach slabs. The design team will investigate ways to improve this joint.	New details have been developed to accommodate this comment
12		Bulb tee girder standards: Recommend that thicker webs be detailed in order to minimize web cracking in bulb tee girders.	B	This will be studied; however the designers have noted cracking in AASHTO Type VI girders with 8" webs. The issue of web cracking will be studied and incorporated into the new standards.	The final disposition of this issue was to use the thinner web in order to take advantage of the girder efficiency
13		Bulb tee girder standards: 8 inch thick webs facilitate shipping and handling	B	The design team will investigate this. It was noted that other states such as Washington routinely ship very large bulb tees with 6.1" thick webs.	The final disposition of this issue was to use the thinner web in order to take advantage of the girder efficiency

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14		Bulb tee girder standards: Investigate issues with web width and collision damage.	B	This will be studied by the design team.	This was studied. It was felt that the more flexible web would lead to less damage to the girder flange. A punching failure of the web is fairly easy to repair.
15		Bulb tee girder standards: Investigate what girder depths to use for the new bulb tee girders.	B	This will be studied by the design team. The results will be based on several factors including availability of forms from local precast fabricators and the limits used by other states.	A decision was made by UDOT to switch to hard English beam depths
16		Bulb tee girder standards: Keep AASHTO girder standards for used in widening bridges.	B	This will be investigated; however there is a desire to switch to bulb tees for all new construction and not allow contractor substitutions for bulb tee designs. This will help fabricators amortize the cost of new forms over many projects.	If an older bridge needs to be widened, a special custom form can be used. It may also be possible to modify the bulb tee form by blocking in the flanges.
17		Bulb tee girder standards: Investigate exactly what forms are currently available in Utah	B	The design team will meet with local fabricators and determine what forms are available and then decide on the final bulb tee standard dimensions.	This was completed, and a decision was made to standardize to one form.
18		Bulb tee girder standards: Recommend the use of 0.6 inch diameter strand for all designs.	A	Agreed	Notes will be added to the standards

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19		Bulb tee girder standards: Investigate what LRFD exposure factor should be used for girder designs in Utah	B	This will be investigated and the standards adjusted accordingly.	The cover specified is what is used in Washington State. It is slightly less than the cover for concrete exposed to deicing salts, but meets the requirements for exterior exposure.
20		Decked bulb tees: Investigate the need for limiting the use of decked bulb tees to low volume roadways.	B	The limitation of other states will be investigated and possibly incorporated into the UDOT standards.	To be determined in final design
21		Decked bulb tees: Make sure that connections can accommodate differential camber	A	Agreed. All connections should be able to accommodate camber tolerances.	Connection details chosen in final development accommodate differential camber.
22		Decked bulb tees: Should we allow for grinding of the top flange (bare deck) or design for additional wearing (riding) surface.	B	This will be studied by the design team.	This is still being investigated.
23		Decked bulb tees: Recommend varying the thickness of the top flange to accommodate roadway cross slope and longitudinal profile.	B	This is a difficult issue. It creates difficulties during fabrication. The design team will discuss this with fabricators and bring this issue to a resolution.	This will be done.

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24		Integral Abutment Standards: Ensure that there is proper cover over reinforcing at any proposed chamfers.	A	Agreed	This will be done.
25		Integral Abutment Standards: Incorporate a rotational joint between the integral abutment and the approach slab to accommodate rotation of the superstructure and settlement of the far end of the approach slab. There should be a pinned joint at the abutment end of the slab.	A	Agreed. The details were based on plans from a non-standard bridge. Future details will show a pinned joint.	New details have been developed to accommodate this comment
26		Integral Abutment Standards: The critical path for construction of an integral abutment will be the curing of the closure pour concrete. Recommend a 7 day cure. The team should investigate the use of special aggregate concretes for accelerated curing of site cast concrete (NCHRP 1071).	B	The issue with curing of concrete and closure pours will be investigated including the use of special mixes and steel plating over fresh concrete during curing.	UDOT is investigating this issue in detail.
27		Precast Pier Standards: Designs should account for misalignments of components. Specified tolerance should be reasonable.	B	The issues of tolerances for piers will be investigated and covered with either details or specifications.	Tolerance sheets have been developed for all critical components
28		Precast Pier Columns: Recommend that the minimum diameter column be set at 3 feet. The maximum should be set at 5 feet.	B	The design team will consider this recommendation.	This was done
29		Precast Pier Columns: There is a slight preference for the use of 8 sided columns verses six sided columns. All agreed that this was preferred over round columns in order to simplify fabrication.	A	Eight sided columns will probably be used unless fabricators desire the six sided option.	8 sided columns were chosen for the standards

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30		Precast Pier Columns: There was no significant preference regarding the use of individual hoops over spirals for confinement reinforcement.	B	Both will be investigated since both can work. This will be discussed with fabricators. This may left up to the fabricators as an option.	The standards currently show hoops. There is a move in the high seismic states to use hoops, because failure of one spiral leg leads to an un-wrapping of the confinement steel. Hoops are considered a more redundant system
31		Approach slabs: Build in vertical adjustability at the sleeper slab.	A	Agreed	This was done
32		Approach slabs: Consider using an L shaped sleeper slab verses an inverted T shape when the approach pavement is asphalt.	B	This will be investigated by the design team.	A decision was made to keep the T-slab. The details could be modified easily for L-slabs
33		Approach slabs: Consider using shorter approach slabs to reduce component shipping and handling weights.	B	The recommendation was to keep the current standard length. This will probably not change since the state used to use shorter slabs, but they did not work well.	No changes proposed
34		Pile supported footings: Recommend the continued use of steel H and pipe piles for smaller foundations and drilled shafts for larger foundations.	A	Agreed.	Details will be developed for all three types of piles

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35		Culverts: Investigate the use of concrete aprons at inlets and outlets	B	This will be studied by the design team.	This was done
36		Culverts: Prefer chamfer inlet top edge over radius.	B	This will be studied by the design team.	This was done
37		Culverts: Notch the footing around the end of the wingwall verses the square edge shown on the preliminary standards	A	Agreed	This was done
38		General: Investigate the use of a performance based specification for concrete. Obtain input from industry.	B	This will be studied by the design team.	UDOT is investigating this issue in detail.

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